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and a lubricant and the viscosity of the ink composition is from about 1,000 to about 50,000 cps at 20°C.

A marked-up version of the above amended claims pursuant to 37 C.F.R. 1.121(c)(1)(ii) is attached for the Examiner's review as Exhibit A.

REMARKS

This amendment responds to the office action mailed on August 12, 2002. After entry of this amendment, claims 1-13 and 16-39 are pending in this application. Claims 1, 16, 19, 23, 27, 29, 32, and 36 are amended in this application to more particularly point out and distinctly claim the subject matter which Applicants regard as their invention. Support for the amended claims may be found, for example, in the following portions of the specification:

Support for Claim Amendments:

Claim	Support in the specification
1	Original claims 1 and 15, specification at page 4, lines 8-9.
16	Original claim 16, specification at page 4, lines 10-11.
19	Original claim 19, specification at page 4, lines 8-9.
23	Original claim 23, specification at page 4, lines 8-9.
27	Original claim 27, specification at page 4, lines 8-9.
29	Original claim 29, specification at page 4, lines 8-9.
32	Original claim 32, specification at page 4, lines 8-9.
36	Original claim 36, specification at page 4, lines 8-9.

A complete clean listing of pending claims 1-13 and 16-39 is attached for the Examiner's convenience as Exhibit B pursuant to 37 C.F.R. 1.121(c)(1)(iii).

The Present Invention:

Before considering the rejections cited in the Office Action, a brief, non-limiting review of the invention is presented in order to assist the Examiner in understanding how the present claims distinguish the invention over the prior art. The present invention is directed to a non-erasable ink composition for use in a writing instrument comprising an isocyanate free thermoplastic polyurethane resin, a colorant, and an organic solvent. The ink composition may also include a second resin, plasticizers, antioxidants, corrosion inhibitors, lubricants, chemical dispersants, and surfactants.

The Rejections Under 35 U.S.C. § 102:

To anticipate a claim under 35 U.S.C. § 102, a prior art reference must disclose each and every limitation of the claimed invention, either explicitly or inherently. *In re Schreiber*, 128 F.3d 1473 (Fed. Cir. 1997). The prior art reference must disclose, either expressly or under the principles of inherency, every limitation of the claim at issue. *Corning Glass Works v. Sumitomo Elec. U.S.A., Inc.*, 868 F.2d 1251, 1255-1256 (Fed. Cir. 1989).

I. CLAIMS 1, 3-12, 17-23, 29, AND 32-35 ARE PATENTABLE OVER U.S. PATENT NO. 5,886,091 TO HARRIS ET AL. ACCORDING TO 35 U.S.C. § 102(b)

Claims 1, 3-12, 17-23, 29, and 32-35 are rejected according to 35 U.S.C. § 102(b) as allegedly anticipated by U.S. Patent 5886,091 to Harris et al ("Harris"). Office Action at ¶ 2. Claims 3-12 and 17-18 are dependent on claim 1. Claims 20-22 are dependent on claim 19. Claims 33-35 are dependent on claim 32.

Harris discloses an ink composition for gravure printing (col. 1, lines 4-6). The amended claims 1, 19, 23, 29, and 32 require that the viscosity of the ink composition be about 1,000 to about 50,000 cps. Harris is directed to an ink composition for gravure ink, which has a viscosity between 10 seconds and 30 seconds by Shell Cup #2 (col. 6, lines 48-49) or between 10 and 30 cps (see e.g. conversion table from www.viscosity.com, enclosed as Exhibit C). Harris does not disclose the limitations of the amended independent claims 1, 19, 23, 29, and 32 that viscosity of the ink composition be about 1,000 to about 50,000 cps.

Since Harris does not disclose each and every limitation of the claimed invention, Applicants respectfully request that the rejection of claims 1, 3-12, 17-23, 29, and 32-35 be withdrawn.

II. CLAIMS 1-8, 11-14, 18-21, 27-28, AND 32-35 ARE PATENTABLE OVER U.S. PATENT NO. 5,594,044 TO YANG UNDER 35 U.S.C. § 102(b)

Claims 1-8, 11-14, 18-21, 27-28, and 32-35 are rejected according to 35 U.S.C. § 102(b) as allegedly anticipated by U.S. Patent No. 5,594,044 to Yang ("Yang"). Office Action at ¶ 3. Claims 2-8, 11-14, and 18 are dependent on claim 1. Claims 20-21 are dependent on claim 19. Claim 28 is dependent on claim 27. Claims 33-35 are dependent on claim 32.

Yang discloses an ink composition for ink jet printing, which has a viscosity between 1.6 and 7.0 cps (col. 1, lines 7-12 and col. 3, lines 21-22). Amended claims 1, 19, 27, and 32 require that the viscosity of the ink composition be about 1,000 to about 50,000 cps. Therefore, Applicants submit that Yang does not anticipate Applicant's ink composition because Yang does not disclose each and every limitation of the claimed invention. Accordingly, Applicants respectfully request the withdrawal of the rejection of claims 1-8, 11-14, 18-21, 27-28, and 32-35.

III. CLAIMS 1-14 AND 17-18 ARE PATENTABLE OVER U.S. PATENT NO. 5,837,042 TO LENT ET AL. UNDER 35 U.S.C. § 102(b)

Claims 1-14 and 17-18 are rejected according to 35 U.S.C. § 102(b) as allegedly anticipated by U.S. Patent No. 5,837,042 to Lent et al. ("Lent"). Claims 2-14 and 17-18 are dependent on claim 1.

Lent discloses an invisible fluorescent ink jet ink composition, which has a viscosity between 1.6 and 6 cps (col. 1, lines 11-13 and col. 6, line 26). Amended claim 1 requires that the viscosity of the ink composition be about 1,000 to about 50,000 cps. Therefore, Applicants submit that Lent does not anticipate Applicants' ink composition because Lent does not disclose each and every limitation of the claimed invention.

Accordingly, Applicants respectfully request the withdrawal of rejections of claims 1-14 and 17-18.

The Rejections Under 35 U.S.C. § 103:

The applicable law governing obviousness states that even if a claim is not anticipated under § 102, it may be found invalid under § 103 "if the differences between the subject matter [of the claim] sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." 35 U.S.C. §103 (a). The relevant inquiry is whether the prior art suggests the claimed invention, and whether that prior art would have indicated a reasonable expectation of success to one of ordinary skill in the art. *In re O'Farrell*, 853 F.2d 894, 902-903 (Fed. Cir. 1988). Both the suggestion and expectation of success must be found in the prior art, not in Applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). A party alleging invalidity based on obviousness over a combination of prior art references must show some motivation or suggestion to combine the prior art teachings. *AL-Site Corp. v. VSI International, Inc.*, 174 F.3d 1308, 1323-1324 (Fed. Cir. 1999). Three elements must be shown: (1) a particular prior art reference (or references when combined) teaches or suggests all of the limitations of the claim challenged; (2) a suggestion or motivation exists in the prior art to make any required modification or combination in/of the references cited against the claim; and (3) there is a reasonable expectation of success. MPEP § 2142. In other words, an obvious rejection cannot be based on hindsight, that is, there must be a motivation to combine references absent the teachings of the applicant's disclosure. MPEP § 2143.

I. CLAIMS 24-26 ARE NOT OBVIOUS OVER U.S. PATENT NO. 5,886,091 TO HARRIS ET AL. IN VIEW OF U.S. PATENT NO. 4,686,246 TO GAJRIA

The Office Action alleges that claims 24-26 are obvious over U.S. Patent No. 5,886,091 to Harris et al. ("Harris") in view of U.S. Patent No. 4,686,246 to Gajria ("Gajria") according to 35 U.S.C. § 103(a). Office Action at ¶ 8. Claims 24-26 are dependent on

amended claim 23. The Office action alleges that the difference between Applicants' ink composition and Harris is the requirement in claims for a specific type of corrosion inhibitor.

The Office Action alleges that in light of the motivation to use the corrosion inhibitor, such as benzotriazole, in Gajria, it would have been obvious to one of the ordinary skill in the art to use such a corrosion inhibitor in Harris to prevent corrosion of the printer by the ink. Office Action ¶ 8, pages 5-6. Applicants respectfully disagree.

Harris discloses an ink composition for publication gravure ink, which has a viscosity between 10 and 30 cps. Amended claim 23, upon which claims 24-26 depend upon, requires that the viscosity of the ink composition be about 1,000 to about 50,000 cps. Therefore, one of the ordinary skill in the art would not look to Harris, which discloses an ink for gravure printing with viscosity between 10 and 30 cps, when developing Applicants' ink compositions with viscosity about 1,000 to about 50,000 cps.

Gajria discloses an aqueous-based ink composition for ballpoint pen, which has a viscosity of no greater than 100 cps (equal to 100 mPa.S) (col. 3, line 55), and the use of less than 5% corrosion inhibitor, such as benzotriazole to prevent corrosion of metal that come in contact with the ink (col. 5, lines 42-46). One of the ordinary skill in the art would not look to Gajria, which is an aqueous-based ink with viscosity less than 100 cps, when developing Applicants' organic solvent-based ink, which has a viscosity about 1,000 to about 50,000 cps.

One of ordinary skill in the art would not be motivated to combine Harris, which is directed at an ink composition for gravure printing with viscosity between 10-30 cps, with Gajria, which is directed at an ink composition for writing instruments with viscosity up to 100 cps. In addition, one of the ordinary skill in the art would not be motivated to combine the two references because Gajria's ink composition uses a polar solvent, preferably water (col. 4, lines 25-28) whereas Harris's ink composition uses non-polar solvents, such as ethanol and ether (col. 3, lines 3-9). Absent the Applicant's disclosure, one of the ordinary skill would not be motivated to combine Harris and Gajria. As stated above, motivation to combine prior art must be present in the prior art references and not the applicant's disclosure. Therefore, Applicants' solvent-based ink composition

with viscosity from about 1,000 to about 50,000 cps is not obvious over Harris in view of Gajria.

Accordingly, Applicant submits that the rejection of claims 24-26 based on Harris in view of Gajria is overcome, and the rejection should be withdrawn.

II. CLAIMS 27-28 ARE NOT OBVIOUS OVER HARRIS IN VIEW OF U.S. PATENT NO. 5,663,217 TO KRUSE

The Office Action alleges that claims 27-28 are obvious over Harris in view of U.S. Patent No. 5,663,217 to Kruse (“Kruse”) according to 35 U.S.C. § 103(a). Office Action at ¶ 9. The Office Action alleges that the difference between the present invention and Harris is the requirement in the claims for a dispersant.

The Office Action alleges that it would have been obvious to one of the ordinary skill in the art to use dispersant in Harris’ ink to produce ink with stable dispersion that binds well to paper and, thereby, arrive at the claimed invention. Office Action at ¶ 9. Applicants respectfully disagree.

As stated above, Applicant’s ink composition is not obvious in light of Harris. See section IV.

Kruse discloses an ink for ink jet printers, which has a viscosity of not more than 20 cps, and the use of acrylic resin dispersant in order to produce stable dispersion and bind colorant to paper (col. 6, lines 6-15 and 50-52). One of the ordinary skill in the art would not look to Kruse which discloses an ink composition for ink jet printers with viscosity of less than 20 cps when developing Applicants’ ink composition with viscosity from about 1,000 to about 50,000 cps.

Applicants note that Harris is drawn to ink used in gravure printing, a process that involves the use of an engraved metal cylinder to transfer ink to paper (col. 1, lines 7-9 and col. 6, line 59 to col. 7, line 3). On the other hand, Kruse discloses an ink composition for ink jet printers in which a fluid ink is forced under pressure through a small nozzle in a printing head (col 1, lines 3-11). Therefore, there is no motivation in the cited prior art to use the dispersant as taught by Kruse in combination with Harris. Even if Kruse and Harris were combined, one would not arrive at Applicants’ ink composition with viscosity about 1,000 to

about 50,000 cps. Accordingly, Applicants submit that the 35 U.S.C. § 103 (a) rejection of claims 27-28 in view of Kruse in combination with Harris is overcome, and the rejection should be withdrawn.

III. CLAIMS 30-31 ARE NOT OBVIOUS OVER HARRIS IN VIEW OF U.S. PATENT NO. 6,391,943 TO SARMA ET AL

The Office Action alleges that claims 30-31 are obvious over Harris in view of U.S. Patent No. 6,391,943 to Sarma et al. ("Sarma") according to 35 U.S.C. § 103(a). Office Action at ¶ 10. The Office Action alleges that the difference between the Applicants' ink composition and Harris' ink is the requirement in the claims for a specific antioxidant. Office Action at ¶ 10.

The Office Action alleges that it would have been obvious to one of ordinary skill in the art to use the specific type and the amount of antioxidant disclosed by Sarma in Harris's ink, and thereby arrive at the claimed invention. Office Action at ¶ 10, page 7. Applicants respectfully disagree.

As stated above, Applicant's present invention is not obvious in light of Harris. See section IV.

Sarma discloses ink compositions for ink jet printing, which have viscosities between 30 and 44 cps (examples 1, 3, and 4), containing 0.01 to 5.0 percent in weight of an antioxidant, such as eugenol, hydroquinone, and butylated hydroxytoluene, in order to improve the performance in the ink jet printhead by decreasing the occurrence of gas bubbles caused by the dissolved oxygen in the ink (col. 5, line 60 to col. 6, line 38). One of the ordinary skill in the art would not look to Sarma, which discloses ink composition for ink jet printing with viscosity between 30 and 44 cps, in developing Applicants' ink composition with viscosity from about 1,000 to about 50,000 cps.

One of the ordinary skill in the art would not be motivated to combine Sarma, which discloses ink jet ink, and Harris, which discloses ink for gravure printing, because of the differences in viscosities and method of application of the ink to paper.

Sarma discloses the use of the antioxidant in its ink composition to reduce the formation of bubbles creating in the ink by the oscillating pressure of the ink jet printhead

(col. 6, lines 7-31). Sarma's inks contain at least one antioxidant. The use of the different antioxidants is not expected to adversely affect the ink composition, but rather improve performance (col. 6 lines 24-31). On the other hand, a formulation of Harris's ink composition includes the use of a non-drying oil as a binder that undergoes oxidative polymerization upon drying to form an adhesive film for the colorant (col. 5, lines 63-66). Therefore, one of the ordinary skill in the art would not expect that any antioxidant could be used with Harris, since the use of certain antioxidants could adversely affect the binding action of the non-drying oil in Harris's ink and decrease its performance.

Therefore, the only source of motivation to combine Sarma and Harris is found in the Applicant's disclosure and not in the cited references. This is not permitted to support a rejection under 35 U.S.C. § 103. Even if Harris and Sarma were combined, one would not arrive at Applicants' ink composition with viscosity about 1,000 to 50,000 cps. Accordingly, Applicants submit that the rejection of claims 30-31 in view of Harris and Sarma is overcome, and the rejection should be withdrawn.

IV. CLAIMS 36-39 ARE NOT OBVIOUS OVER HARRIS IN VIEW OF U.S. PATENT NO. 5,981,625 TO ZOU ET AL

The Office Action alleges that claims 27-28 are obvious over Harris in view of U.S. Patent No. 5,981,625 to Zou et al. ("Zou") according to 35 U.S.C. § 103(a). Office Action at ¶ 9. The Office Action alleges that the difference between the Applicants' ink composition and Harris is the requirement in the claims of sorbitan sesquioleate.

The Office Action alleges that "it would have been obvious to one of ordinary skill in the art to use sorbitan sesquioleate in the ink of Harris in order to produce ink with improved drying rate, and thereby arrive at the claimed invention." Office Action, ¶ 11, pages 7-8. Applicants respectfully disagree.

As stated above, Applicant's present invention is not obvious in light of Harris. See section IV.

Zou discloses inks for newspaper printing that use sorbitan sesquioleate as a surface active agent to reduce the surface tension energy of oil in the ink composition and thereby reduce the drying rate of the ink (col. 16, lines 32-26). The newspaper printing inks

of Zou have viscosities of about 6,000 to 15,000 cps (col. 4, line 2). Zou does not disclose the use of isocyanate free thermoplastic polyurethane resin in a ink composition. Therefore, one of the ordinary skill would not look to Zou when developing the Applicants' ink composition with isocyanate free thermoplastic polyurethane resin.

One of ordinary skill in the art would not be motivated to combine Harris and Zou, absent the applicant's disclosure. Harris discloses an ink composition for gravure printing that provides increased color strength (col. 2, lines 5-6) and viscosity between 10-30 cps. On the other hand, Zou is directed to ink compositions used in newspaper printing that provide increased rub resistance (col. 2, lines 53-55) and viscosity between 6,000-15,000 cps. Whereas Zou identifies increased drying rate of the ink as beneficial for its objective to resist rubbing, Harris warns against excessive solvent evaporation that may cause skipping (col. 6, lines 38-41). In addition, Zou teaches an ink composition comprised of 30-70% in weight of solvent, stating that an excessive amount of oil would negatively affect the printability (col. 16 at lines 18-23). In contrast to Zou, Harris teaches the benefit in gravure printing of low solid content and more than 85% in weight of solvent (col. 6, lines 36-39). For the reasons stated above, applicants respectfully submit that claims 37-39 are not obvious over Harris in view of Zou and request that the rejection of claims 37-39 under 35 U.S.C. § 103(a) be withdrawn.

V. CLAIMS 1, 3, 5-10, 14-23, 26, AND 36 ARE NOT OBVIOUS OVER U.S. PATENT 6,387,984 TO ITO IN VIEW OF U.S. PATENT NO. 4,146,699 TO COOK

Claims 1, 3, 5-10, 14-23, 26 and 36 stand rejected as allegedly obvious over U.S. Patent No. 6,387,984 to Ito ("Ito") in view of U.S. Patent No. 4,146,699 to Cook ("Cook") according to U.S.C. § 103(a). Office Action, ¶ 12. The Office Action alleges that "[i]n light of the motivation for using isocyanate free polyurethane disclosed by Cook as described above, it would have been obvious to one of the ordinary skill in the art to use isocyanate free polyurethane in the ink of Ito in order to produce a storage stable ink... and thereby arrive at the claimed invention." Office Action, ¶12. Applicants respectfully disagree.

Applicants respectfully note that Ito discloses an aqueous ink composition for ball-point pens and the use of 0.1 to 20% water-soluble urethane resins as a dispersant (col. 8, lines 39-63). Applicants's present application discloses an organic solvent-based ink composition. Therefore, one in the ordinary skill in the art would not be motivated to look to Ito, which is directed at a water-base ink, when developing Applicants' ink composition, which is an organic solvent-based ink. This is not overcome by combining Ito and Cook.

Cook discloses that the storage stability of polyurethane thermoplastics is decreased by free isocyanate (col. 2, lines 13-18). Absent the Applicants' disclosure of using isocyanate free polyurethane thermoplastics in an ink composition for a writing instrument, there is no motivation in either Cook or Ito to combine these two cited references. As stated previously, the motivation to combine must be found in the prior art and not the applicant's disclosure in order to support a rejection under 35 U.S.C. § 103. Since there is no motivation in Ito or Cook to combine the two references, Applicants respectfully submit that the 35 U.S.C. § 103(a) rejection of claims 1, 3, 5-10, 14-23, 26, and 36 are overcome and should be withdrawn.

VI. CLAIM 4 IS NOT OBVIOUS ACCORDING TO U.S.C. § 103 OVER ITO IN VIEW OF COOK AS APPLIED TO CLAIMS 1, 3, 5-10, 14, 26, AND 36 AND FURTHER IN VIEW OF U.S. PATENT 5,837,042 TO LENT ET AL

Claim 4 is dependent on claim 1. The Office Action alleges that the only difference between Ito in view of Cook and claim 4 is the molecular weight of the polyurethane. Office Action, ¶ 13.

The Office Action alleges that "given the relationship between molecular weight and viscosity" it would have been obvious for one of ordinary skill in the art to use polyurethane with specific molecular weight disclosed by Lent in combination with the ink of Ito. Office Action, ¶ 13. Applicants respectfully disagree.

First, as discussed previously, Applicants submit that Applicants' ink composition is not obvious in light of Ito and Cook. See section VIII. These differences are not overcome in combination with U.S. Patent 5,837,042 to Lent et al. ("Lent").

Ito discloses ink compositions for ball point pens with viscosity of 100 cps to 20,000 cps (col. 7, lines 53-58). Lent discloses ink composition for ink jet printing that has a viscosity of 1.8 cps to 6 cps (col. 6, lines 23-26). One of ordinary skill in the art would not be motivated to combine Ito, which discloses an ink composition for a writing instrument, with Lent, which discloses an ink composition for ink jet printing because of the different viscosity requirements for the two different uses. Based on the relationship between molecular weight and viscosity as pointed out by the Office Action, one of ordinary skill in the art would further not be motivated to combine Lent with Ito. Accordingly, Applicants respectfully submit that the rejection of dependent claim 4 as applied to claims 1, 3, 5-10, 14-23, 26, and 36 in view of Lent and the other cited art is overcome, and the rejection should be withdrawn.

VII. CLAIMS 24-25 ARE NOT OBVIOUS ACCORDING TO 35 U.S.C. § 103(a) OVER ITO IN VIEW OF COOK AS APPLIED TO CLAIMS 1, 3, 5-10, 14-23, 26, AND 36 IN VIEW OF U.S. PATENT NO. 4,686,246 TO GAJRIA

Claims 24-25 are dependent on claim 23. The Office Action alleges that the only difference between Ito in view of Cook and claims 24 and 25 is the amount of corrosion inhibitor. Office Action, ¶ 14. Applicants respectfully disagree.

First, as discussed previously, Applicants submit that Ito in view of Cook does not disclose Applicants' ink composition containing isocyanate free thermoplastic polyurethane. See section VIII. These differences are not overcome in combination with U.S. Patent 4,686,246 to Gajria ("Gajria").

Ito discloses an aqueous ink for ball point pens comprising of 1-40% in weight of water-soluble organic solvent and/or 1-80% in weight of water (col. 8, lines 11-15 and lines 31-36). As stated previously, one would not look to Ito, which discloses an aqueous-base ink composition, to develop Applicant's ink, which is a solvent-based ink composition.

Ito's ink composition is alleged to decrease precipitation of solids by using water-soluble viscosity modifiers, flat-shaped resins, and water-soluble dispersants. Therefore, compounds that are insoluble in water would have to be added in amounts that do not increase precipitation. Gajria does not teach whether the amounts of corrosion inhibitor that it discloses effects precipitation (col. 5, lines 42-46) and therefore, one of ordinary skill

in the art would not be motivated to apply Gajria to Ito. In addition, Ito discloses an ink composition with viscosity between 100 cps and 20,000 cps (col 7, lines 53-58), whereas Gajria discloses an ink composition with viscosity less than 100 cps (col. 3, lines 53-57). Accordingly, Applicants submit that the rejection of dependent claims 24-25 as applied to claims 1, 3, 5-10, 14-23, 26, and 36 in view of Gajria and the other cited art is overcome, and the rejection should be withdrawn.

VIII. CLAIMS 37-39 ARE NOT OBVIOUS ACCORDING TO 35 U.S.C. § 103(a) IN VIEW OF ITO AND COOK AS APPLIED TO CLAIMS 1, 3, 5-10, 14-23, 26, AND 36 IN VIEW OF US PATENT 5,980,624 TO ICHIKAWA ET AL.

The Office Action alleges that claims 37-39 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ito in view of Cook as applied to claims 1, 3, 5-10, 14-23, 26, and 36 above, and further in view of U.S. Patent No. 5,980,624 to Ichikawa et al. ("Ichikawa") for reasons provided in Office Action, page 10, ¶ 15.

As discussed previously, Applicants' invention is not obvious in light of Ito in view of Cook. See section VIII.

Ichikawa discloses an oil-based ink composition for use in stamp ink, comprised of 0.001-10% sorbitan sesquileate as a solvent-evaporation inhibiting additive (col. 1, lines 64-67, col. 3, lines 52-54, and col. 4, lines 8-13 and 54). Ichikawa does not disclose the use of isocyanate free thermoplastic polyurethane resin in an ink composition. Therefore, one of ordinary skill in the art would not look to Ichikawa when developing the Applicant's ink composition for a writing instrument that uses isocyanate free thermoplastic polyurethane resin.

Also, one of ordinary skill of the art would not be motivated to combine Ichikawa and Ito. Ichikawa is directed at stamp ink and is oil-based. Ito is directed at an ink composition for writing instrument and is aqueous-based (col. 1, lines 4-5). Therefore, one of ordinary skill in the art would not be motivated to use the sorbitan sesquileate disclosed by Ichikawa as an anti-drying additive for oil based ink in Ito's aqueous base ink. The Applicant's own disclosure cannot be used as motivation to combine cited references, that

motivation must be present in the cited prior art in order to support a rejection under 35 U.S.C. § 103. No such motivation is found in either Ichikawa or Ito.

Applicants respectfully submit that claims 37-39 are not obvious over Ichikawa in combination with Ito and Cook and request that the rejection of claims 37-39 be withdrawn.

IX. CLAIMS 1-3, 5-14, 17-18, 23-26, 36, AND 38 ARE NOT OBVIOUS UNDER 35 U.S.C. § 103(a) OVER GAJRIA IN VIEW OF COOK

The Office Action alleges that 1-3, 5-14, 17-18, 23-26, 36 and 38 are unpatentable over Gajria in view of Cook under 35 U.S.C. § 103(a) for reasons provided in Office Action, ¶ 16. The Office Action alleges that in light of the motivation for using isocyanate free polyurethane thermoplastic disclosed by Cook, one of ordinary skill in the art would be motivated to use isocyanate free polyurethane in ink of Gajria and arrive at the Applicants' ink composition. Office Action, ¶ 16. Applicants respectfully disagree.

Gajria discloses an aqueous-based ink composition with viscosity less than 100 cps (col.3, lines 53-57 and col. 4, lines 25-28). Applicants' ink compositions are organic solvent-based and have viscosity between about 1,000 and about 50,000 cps. One of ordinary skill in the art would not look to Gajria, which discloses an aqueous-based ink composition, in developing the present claimed invention, which is an organic solvent-based ink composition.

Gajria discloses the use of polyurethanes as a shock resistant material (col. 3, lines 42-46 and col. 4, line 2). Cook discloses that free isocyanates present in polyurethane thermoplastics make it unstable (col. 2, lines 15-17).

As stated previously, one of the ordinary skill in the art would not look to Gajria's ink composition, which is aqueous-based, to develop the Applicants' ink composition, which is solvent-based. In light of this, one of the ordinary skill in the art would not be motivated to combine Gajria with Cook absent the Applicant's disclosure. To support an obvious rejection, there must be motivation to combine within the cited prior art references. In addition, even if Gajria and Cook were combined, one of the ordinary skill in the art would not arrive at the Applicants' ink composition since Gajria discloses aqueous-

based inks and the Applicants' ink compositions are solvent-based. Accordingly, Applicants submit that the rejections of claims 1-3, 5-14, 17-18, 23-26, 36 and 38 under 35 U.S.C. § 103(a) is overcome, and respectfully request that the rejections be withdrawn.

X. CLAIM 4 IS NOT OBVIOUS UNDER 35 U.S.C. § 103(a) OVER GAJRIA IN VIEW OF COOK AS APPLIED TO CLAIMS 1-3, 5-14, 17-18, 36, AND 38 ABOVE, AND FURTHER IN VIEW OF LENT

Claim 4 is dependent on claim 1. The Office Action alleges that the only difference between Gajria in view of Cook and claim 4 is the requirement in the claims of molecular weight of polyurethane. The Office Action also alleges that, in light of the motivation to apply Lent to Gajria in view of Cook, claim 4 is obvious under 35 U.S.C. § 103(a). Office Action, ¶ 17. Applicants respectfully disagree.

As stated above in section XII, Applicants' ink composition is not obvious over Gajria in view of Cook.

Lent discloses an ink composition for ink jet ink printing with viscosity of 1.8 cps to 6 cps (co. 6, lines 23-26). Gajria discloses an ink composition for writing instruments which require much higher viscosity. Therefore, one of ordinary skill in the art would not be motivated to combine Lent and Gajria. In addition, based on the relationship between molecular weight and viscosity as pointed out by the Office Action at ¶ 17, page 12, one of ordinary skill in the art would not be motivated by either of the cited references to combine Lent and Gajria or expect success since the ink in Lent requires much lower viscosity than the ink composition in Gajria. Absent the disclosure of the Applicant's ink compositions, one of the ordinary skill in the art would not combine Lent and Gajria. Motivation to combine must be found in the cited references and not the applicants' disclosure in order for a rejection under 35 U.S.C. § 103 to be valid.

Applicants also note that even if one of ordinary skill does combine Lent and Gajria, Applicants' invention would not be achieved because Gajria's inks are aqueous-based whereas Applicants' ink compositions are solvent-based.

Accordingly, Applicants respectfully submit that rejection of claim 4 under 35 U.S.C. § 103(a) in view of Lent and Gajria in view of Cook is overcome and request that the rejection be withdrawn.

XI. CLAIMS 19-22 AND 37 ARE NOT OBVIOUS ACCORDING TO 35 U.S.C. § 103(a) IN VIEW OF GAJRIA AND COOK AS APPLIED TO CLAIMS 1-3, 5-14, 17-18, 23-36, AND 38 ABOVE

The Office Action alleges that claims 19-22 and 37 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Gajria in view of Cook as applied to claims 1-3, 5-14, 17-18, 23-26, 36, and 38 above, in further view of Ichikawa for reasons provided in Office Action, ¶ 18, page 12-13.

As stated above in section XII, Applicants' invention is not obvious over Gajria in view of Cook.

Ichikawa discloses an oil-based ink composition for use in stamp ink and does not disclose the use of isocyanate free thermoplastic polyurethane resin. Therefore, one of the ordinary skill in the art would not look to Ichikawa when developing Applicant's ink composition using isocyanate free thermoplastic polyurethane resin.

One of ordinary skill in the art would also not be motivated to combine Ichikawa and Gajria because Ichikawa discloses an oil-based ink for stamp pads and Gajria discloses aqueous-based inks for writing instruments. Absent Applicants' disclosure, there is no motivation in either cited references to combine one with the other. Hindsight cannot be used as a basis for rejection under 35 U.S.C. § 103. In addition, Applicants note that even if Gajria and Ichikawa were combined, one would not arrive at Applicants' solvent-base ink composition since Gajria is aqueous-base.

Applicants respectfully submit that the 35 U.S.C. § 103(a) rejection of claims 19-22 and 37 are overcome and request that the rejection be withdrawn.

XII. CLAIMS 27-28 ARE NOT OBVIOUS ACCORDING TO 35 U.S.C. § 103(a) IN VIEW OF GAJRIA IN VIEW OF COOK AND ITO

Claims 27-28 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Gajria in view of Cook and Ito for reasons stated in the Office Action, ¶ 19, pages 13-14. Applicants respectfully disagree.

For a rejection under 35 U.S.C. § 103, the cited references must teach all the elements of the claim, there must be motivation in the cited reference to combine it with other cited reference(s), and there must be reasonable expectation of success. MPEP § 2142. Hindsight cannot be used, that is, Applicants' own disclosure cannot be the basis of motivation to combine cited references. MPEP § 2143.

One of ordinary skill would not look to Gajria or Ito, both of which are directed at aqueous-based ink compositions for writing instruments when developing the Applicants' solvent-based ink composition. One of ordinary skill in the art would also not be motivated by Ito or Cook to combine these references absent the Applicants' disclosure of using isocyanate free polyurethane thermoplastic in an ink composition. Therefore, the requirements for a rejection under 35 U.S.C. § 103(a) are not met.

In addition, even if one was to combine the three references, Gajria, Ito, and Cook, one would not achieve the Applicants' claimed invention since Gajria and Ito are directed at aqueous base ink compositions and the Applicants' ink composition is solvent-based.

Accordingly, Applicant respectfully submits that rejection of claims 29-31 under 35 U.S.C. § 103(a) over Gajria in view of Ito and Cook are overcome, and request that the rejection be withdrawn.

XIII. CLAIMS 29-31 ARE NOT OBVIOUS UNDER 35 U.S.C. § 103(a) OVER EITHER GAJRIA OR ITO IN VIEW OF COOK AND U.S. PATENT NO. 4,077,807 TO KRAMER ET AL

The Office Action alleges that claims 29-31 are obvious under 35 U.S.C. § 103(a) over either Gajria or Ito in view of Cook and U.S. Patent No. 4,077,807 to Kramer et al. ("Kramer").

As discussed above in section XII, Applicants' invention is not obvious under 35 U.S.C. § 103(a) in view of Gajria and Cook because there is no motivation in either cited reference to combine the two and even if the references were combined, one would not arrive at Applicants' ink composition.

As discussed above in section VII, Applicant's invention is not obvious in view of Ito and Cook because there is no motivation in either cited reference to combine the two and even if the references were combined, one would not arrive at Applicants' claimed invention.

Kramer discloses an ink composition for ball pens comprised of a polar organic solvent, soluble fatty acid, soluble resin, color ingredient, and certain additives (col. 7, lines 9-47). One of ordinary skill in the art would not look to Kramer in developing the Applicants' ink composition because Kramer does not disclose the Applicants' use of isocyanate free polyurethane thermoplastic in an ink composition.

One of ordinary skill in the art would not be motivated to combine Kramer with Gajria or Ito because the ink composition of Kramer is organic solvent-based whereas the Gajria and Ito inks are aqueous-based. In addition, one of ordinary skill would not combine Kramer and Gajria because Kramer discloses an ink composition with viscosity between 2,000 and 25,000 cps (col. 7, lines 23-24) and Gajria discloses an ink composition with less than 100 cps (col. 3, lines 53-57. As stated above, Gajria or Ito in view of Cook do not render Applicants' ink composition obvious because there is no motivation to combine the references and even if combined, one would not arrive at the Applicant's claimed invention.

Accordingly, Applicant submits that the rejection of claims 32-25 under 35 U.S.C. § 103(a) are overcome and respectfully request that the rejection be withdrawn.

XIV. CLAIMS 32-35 ARE NOT OBVIOUS UNDER 35 U.S.C. § 103(a) OVER GAJRIA OR ITO IN VIEW OF COOK AND U.S. PATENT NO. 4,146,699 TO ENAMI

The Office Action alleges that claims 32-35 are obvious under 35 U.S.C. § 103(a) over either Gajria or Ito in view of Cook and U.S. Patent No. 4,146,499 to Enami (“Enami”) for reasons stated in the Office Action at ¶ 21, pages 15-16.

As discussed above in section XII, Applicants’ invention is not obvious under 35 U.S.C. § 103(a) in view of Gajria and Cook because there is no motivation in either cited reference to combine the two and even if the references were combined, one would not arrive at Applicants’ claimed invention.

As discussed above in section VII, Applicant’s invention is not obvious in view of Ito and Cook because there is no motivation in either cited reference to combine the two and even if the references were combined, one would not arrive at Applicants’ claimed invention.

Enami discloses an aqueous-based ink composition for writing instruments (col. 2, lines 35-39). One of ordinary skill in the art would not look to Enami, directed at an aqueous-based ink, when developing Applicants’ claimed invention of a solvent-based ink for a writing instrument.

For a rejection under 35 U.S.C. § 103, the cited references must teach all the elements of the claim, there must be motivation in the cited reference to combine it with other cited reference(s), and there must be reasonable expectation of success. MPEP § 2142. As stated before, Applicants’ invention is not rendered obvious by either Gajria or Ito in view of Cook because there is no motivation to combine the references. However, even if one was to combine Gajria or Ito with Cook and Enami, one would not achieve Applicants’ claimed invention. Gajria, Ito, and Enami all disclose aqueous-based ink compositions. Applicants’ ink compositions are solvent-based. Therefore, there is no reasonable expectation of success of achieving Applicants’ ink composition even if motivation was found in the cited references. Therefore, Applicants respectfully submits that the rejection of claims 32-35 are overcome and request that the rejection be withdrawn.

XV. CLAIMS 1, 3, 5-7, 9-18, 27, 29, 36, AND 38-39 ARE NOT OBVIOUS UNDER 35 U.S.C. § 103 (a) OVER U.S. PATENT NO. 6,425,948 TO NOWAK ET AL. IN VIEW OF COOK

The Office Action alleges that claims 1, 3, 5-7, 9-18, 27, 29, 36, and 38-39 are unpatentable under 35 U.S.C. § 103(a) over U.S. Patent No. 6,425,948 to Nowak et al. ("Nowak") in view of Cook for reasons stated in the Office Action at ¶ 22.

Nowak is directed at a fluorescent ink composition for writing instruments. The Office Action alleges that one of ordinary skill in the art would have been motivated to use the isocyanate free polyurethane disclosed by Cook in the ink of Nowak and arrive at the Applicant's ink composition. Office Action, ¶ 22. Applicants respectfully disagree.

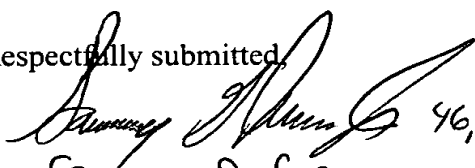
Cook is directed at modifying polyurethane polymers (col. 2, lines 27-29). Nowak is directed at an ink composition for writing instruments. One of the ordinary art would not be motivated to combine Cook and Nowak, absent the fact of Applicants' disclosure of the use of isocyanate free polyurethane thermoplastics in ink compositions. As stated previously, to sustain a rejection based on 35 U.S.C. § 103, there must be motivation to combine the cited references in the cited references. Cook's disclosure of a process to modify polyurethane polymers does not motivate one of ordinary skill in the art to apply it to ink compositions and Nowak does not motivate one of ordinary skill in the art to look at art relating to processing polyurethane polymers. Hindsight is not permitted to be used to support a rejection under 35 U.S.C. § 103 (a). Accordingly, Applicants respectfully submit that the rejection under 35 U.S.C. § 103(a) of claims 1, 3, 5-7, 9-18, 27, 29, 36, and 38-39 are overcome and request that the rejection be withdrawn.

CONCLUSION

Applicants submit that the entire application is now in condition for allowance, early notice of which would be appreciated. Should the Examiner not agree with the Applicants position, then a personal or telephonic interview is respectfully requested to discuss any remaining issues and expedite the eventual allowance of the application.

No fee is believed to be due for the filing of this response. Should any fees be required, however, please charge such fees to Pennie & Edmonds LLP Deposit Account No. 16-1150.

Respectfully submitted,

 46,675
FOR FRANCIS D. CERRITO

Francis D. Cerrito Reg. No.: 38,100

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Exhibit A

Marked-up version of the above amended claims pursuant to 37 C.F.R. 1.121(c)(1)(ii)

1. (Amended) A non-erasable ink composition for a writing instrument comprising an isocyanate free thermoplastic polyurethane resin, an organic solvent and a colorant, wherein the viscosity of the ink composition is from about 1,000 to about 50,000 cps at 20°C.
16. (Amended) The ink composition of claim [15] 1, wherein the viscosity of the ink is from about 2,000 to about 30,000 [cPs] cps at 20°C.
19. (Amended) A non-erasable ink composition for a writing instrument comprising an isocyanate free thermoplastic polyurethane resin, an organic solvent, a colorant and a second resin, wherein the viscosity of the ink composition is from about 1,000 to about 50,000 cps at 20°C.
23. (Amended) A non-erasable ink composition for a writing instrument comprising an isocyanate free thermoplastic polyurethane resin, an organic solvent, a colorant and a corrosion inhibitor, wherein the viscosity of the ink composition is from about 1,000 to about 50,000 cps at 20°C.
27. (Amended) A non-erasable ink composition for a writing instrument comprising an isocyanate free thermoplastic polyurethane resin, an organic solvent, a colorant and a chemical dispersant, wherein the viscosity of the ink composition is from about 1,000 to about 50,000 cps at 20°C.
29. (Amended) A non-erasable ink composition for a writing instrument comprising an isocyanate free thermoplastic polyurethane resin, an organic solvent, a colorant and an antioxidant, wherein the viscosity of the ink composition is from about 1,000 to about 50,000 cps at 20°C.

32. (Amended) A non-erasable ink composition for a writing instrument comprising an isocyanate free thermoplastic polyurethane resin, an organic solvent, a colorant and a plasticizer, wherein the viscosity of the ink composition is from about 1,000 to about 50,000 cps at 20°C.

36. (Amended) A non-erasable ink composition for a writing instrument comprising an isocyanate free thermoplastic polyurethane resin, an organic solvent, a colorant and a lubricant, wherein the viscosity of the ink composition is from about 1,000 to about 50,000 cps at 20°C.

AB UT THE N RCR SS SHELL CUP VISCOMETER

The Shell Cup is a simple, reliable device for measuring the viscosity of a wide range of fluids. Originally developed for use with printing inks, it has found widespread applications as diverse as fuel oil and industrial finishes — for calibrating other viscosity sensors as well as for primary measurements.

The cup was developed by Shell Development Company and is marketed by Norcross Corporation.

AB UT PR CESS VISCOSITY MEASUREMENT AND CONTROL

NORCROSS has been measuring the viscosity of numerous different processes for over 60 years.

As shown on the front of this conversion table, we have sensors for measuring viscosity in open tanks, closed tanks, pressurized tanks and inside pipe lines.

ABOUT N RCR SS SENSITIVITY AND ACCURACY

The 24hr circular chart, shown here, is an actual recording obtained with NORCROSS Viscometer.

This recording starts with boiling water 212°F/100C, which is then allowed to cool.

The viscosity was recorded every three minutes during the cooling period. A few measured temperatures, together with corresponding centipoise viscosities, obtained from tables published by the Bureau of Standards, are shown.

This chart illustrates the outstanding sensitivity of the NORCROSS Falling Piston Viscometer. This sensitivity, which only the NORCROSS Process Viscometer can produce, combined with the simplicity and ruggedness of all NORCROSS units, create a versatile and long lasting viscosity sensor/system.

NORCROSS Viscosity Sensors and/or Viscosity Control Systems are designed to provide years of reliable operation.

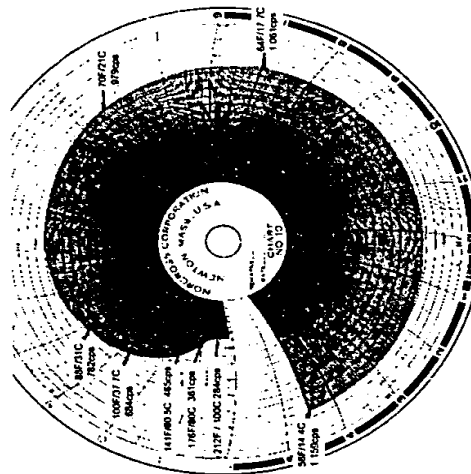
Bulletin V-1261-A Website www.viscosity.com

Viscosity Measurement with The Shell Cup
The conversion table indicates the useful range for each size. The measurement is accomplished as follows:

1. Submerge the cup in the fluid for approximately 30 seconds to allow the cup to come to sample temperature. The sample must be representative — thoroughly stirred for example, and at a known, preferably standard temperature.
2. Lift the cup vertically out of the fluid, starting the stopwatch as the cup breaks the surface.
3. Record the time required for the cup to empty, stopping the watch when the stream breaks.
4. Read the viscosity from the appropriate conversion charts or calibration drawings.

We can measure viscosity at different pressures, flows, temperatures and viscosity ranges.

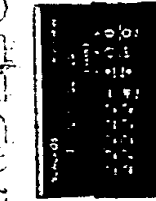
The MP2000 can act as a controller and/or transmitter. Full two way RS485 communication is standard in the MP2000. Optional 4-20mA output is available.



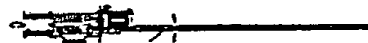
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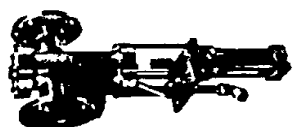
VISCOSITY CONVERSION TABLES



Model MP2000
Advanced Programmable
Viscosity/pH Controller



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Open Tanks
or Vessels at
Atmospheric
Pressure
(0.1-100,000 cps)



Model M24 -
In Line
Applications
(0.1-7,000 cps)

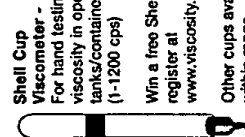


Model M20 -
In Line
Applications
(1,000 - 1M cps)

Model M10 -
Closed Vessels
Above or Below
Atmospheric
Pressure
(1-1M cps)



Model M50 -
In Line
Applications
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